

REMARKS

Claims 1 and 3-9 are pending in the present application. Claim 1 is amended above. New claims 18-20 are added above. No new matter is added by the claim amendments or new claims. Entry is respectfully requested.

Claims 1 and 3-9 stand rejected under 35 U.S.C. 112, first paragraph. Claim 1 is amended above in a manner that is believed to overcome this rejection. Specifically, the claim is amended to state that the “third dielectric layer” is “on the second dielectric layer” and has “an opening above a top of the stud and being spaced apart from the stud”. This feature is shown and described in the specification in at least FIG. 3c, and in the corresponding discussion in the specification, which illustrates the “third dielectric layer” as layer 304, provided on the “second dielectric layer” as layer 302. An “opening” 221 is provided in the third dielectric layer “above a top of the stud” 220a, and “spaced apart from the stud” 220a. In addition, the claim is amended to state that the “first pad of first etch stop material” is “formed in an undermined region of the second dielectric layer below a portion of a lower surface of the third dielectric layer and above a portion of the first dielectric layer, the undermined region being formed after removal of a portion of the second dielectric layer”. This feature is shown and described in the specification in at least FIG. 3d and in the corresponding discussion in the specification, which illustrates the “first pad” as including portion 308a that is formed in the stated “undermined region of the second dielectric layer below a portion of a lower surface of the third dielectric layer and above a portion of an upper surface of the first dielectric layer”. Reconsideration and removal of this rejection are therefore respectfully requested.

Claims 1, 4, 8 and 9 are rejected as being anticipated by Onuma (U.S. Patent No. 6,380,071), or, alternatively, as being obvious over Onuma. Claims 3 and 5-7 are rejected as being obvious in view of the combination of Onuma and Nakamura, *et al.* (U.S. Patent No. 6,492,730). Reconsideration and removal of the rejections are respectfully requested.

The present invention of amended independent claim 1 is directed to a semiconductor device. A first dielectric layer is formed on a substrate. A second dielectric layer is formed on the first dielectric layer. A stud is formed through the first and second dielectric layers. A third dielectric layer is provided on the second dielectric layer. The third dielectric layer has an opening that is above a top of the stud and that is spaced apart from the stud. A first pad of first etch stop material is formed in an undermined region of the second dielectric layer below a portion of a lower surface of the third dielectric layer and above a portion of an upper surface of the first dielectric layer. The undermined region is formed after removal of a portion of the second dielectric layer.

It is respectfully submitted that Onuma fails to teach or suggest the present invention as claimed in amended independent claim 1. ~~In particular, it is submitted that Onuma fails to teach or suggest the structure of the invention of claim 1.~~

With reference to FIG. 8F of Onuma, cited in the Office Action as showing "all aspects of the instant invention", it is submitted that Onuma fails to teach or suggest that the "third dielectric layer" as "an opening above a top of the stud and being spaced apart from the stud", as claimed in amended claim 1. Instead, the Onuma "third dielectric layer" (believed to be layer 61, and not "42" as stated in the Office Action) has an opening that is about a side surface of the Onuma "stud" (believed to be feature 58, and not "38" as stated in the Office Action), and makes direct contact with the stud 58.

In addition, it is submitted that Onuma fails to teach or suggest that the "first pad of first etch stop material" is "formed in an undermined region of the second dielectric layer below a portion of a lower surface of the third dielectric layer and above a portion of an upper surface of the first dielectric layer", as claimed in amended claim 1. Instead, the Onuma "first pad" 13 is formed to the side of the Onuma first dielectric 15, and therefore is not formed "above a portion of an upper surface of the first dielectric layer", as claimed in claim 1.

For the reasons stated above, it is submitted that the Onuma fails to teach or suggest the invention as set forth in amended independent claim 1. Accordingly, reconsideration of the rejection and allowance of amended independent claim 1 are respectfully requested. With regard to dependent claims 3-9, and new dependent claims 18-20, it follows that these claims should inherit the allowability of independent claim 1, from which they depend.


Claims 1 and 3-9 remain rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-6 of U.S. Patent No. 6,518,671. A Terminal Disclaimer believed to address and obviate this double patenting rejection was believed to have been filed in Applicant's Response dated October 2, 2003. However, the present Office Action indicates at paragraph 11 that this Terminal Disclaimer had not been received by the U.S. Patent and Trademark Office. Accordingly, a copy of the previously submitted Terminal Disclaimer is attached hereto. No Terminal Disclaimer fee under 37 C.F.R. 1.20(d) is believed to be due, since two Terminal Disclaimer fees have already been paid in the application (one fee for the Terminal Disclaimer of U.S. 6,350,649, and one fee for the Terminal Disclaimer of U.S. 6,518,671). Removal of this rejection is respectfully requested.

Closing Remarks

It is submitted that all claims are in condition for allowance, and such allowance is respectfully requested. If prosecution of the application can be expedited by a telephone conference, the Examiner is invited to call the undersigned at the number given below.

Respectfully submitted,

Date: March 4, 2004  
Mills & Onello, LLP  
Eleven Beacon Street, Suite 605  
Boston, MA 02108  
Telephone: (617) 994-4900, Ext. 4902  
Facsimile: (617) 742-7774  
J:\SAM\0151\amendmentb.wpd

  
Anthony P. Onello, Jr.  
Registration Number 38,572  
Attorney for Applicant